CLAIMS:

1. A method for preparing particulate silica, comprising the step of feeding a gas mixture of at least one organohalosilane gas of the formula: $R_{4-n}SiX_n$ wherein R is hydrogen, methyl, ethyl or phenyl, X is a halogen atom, n is an integer of 1 to 3, with the proviso that n = 3 when R is phenyl, a flammable gas capable of generating water vapor when burned, and a free oxygen-containing gas to a reaction chamber through a burner, whereby the organohalosilane is subjected to flame hydrolysis according to the scheme (I):

$$R_{4-n}SiX_n + (n/2)H_2O \rightarrow R_{4-n}SiO_{n/2} + nHX \qquad (I)$$

wherein R, X and n are as defined above, and then to oxidation reaction according to the scheme (II):

$$C_iH_jSiO_{n/2} + \{(2i+j/2)/2 + (2-n/2)/2\}O_2 \rightarrow iCO_2 + (j/2)H_2O + SiO_2 \qquad (II)$$

wherein $C_iH_j$ is a general form of $R_{4-n}$ so that i varies in the range of 0 to 6 and j varies in the range of 1 to 15 as R is hydrogen, methyl, ethyl or phenyl, n is as defined above, with the proviso that n = 3 when R is phenyl, thereby forming particulate silica, wherein

the amount of said flammable gas fed is 1/2 to 9 mol per mol of said organohalosilane and such that the amount of water vapor resulting from combustion of said flammable gas is 1 to 6 times the stoichiometric amount in scheme (I),

said burner has a plurality of concentric tubes including a center tube, having an outlet open to the reaction chamber, and

said gas mixture is fed to the center tube of said burner such that it may have a linear velocity at the outlet of the center tube of 50 to 120 m/sec, calculated in the standard state.

2. The method of claim 1 wherein the amount calculated as oxygen of said free oxygen-containing gas fed is 1.0 to 2.0 times the sum of the oxygen equivalent necessary to synthesize $SiO_2$ from $C_iH_jSiO_{n/2}$ in scheme (II) and the oxygen equivalent necessary for theoretical combustion of said flammable gas.

3. The method of claim 1 wherein said organohalosilane is methyltrichlorosilane which is a by-product in the synthesis of dimethyldichlorosilane from metallic silicon and methyl chloride.

4. The method of claim 1 wherein said flammable gas is hydrogen.

5. The method of claim 1 wherein said free oxygen-containing gas is air.

6. The method of claim 1 wherein said burner is a quadruple-tube burner having center, second, third and fourth tubes arranged concentrically from inside to outside,

a mixture of the organohalosilane gas, the flammable gas and the free oxygen-containing gas is fed to the center tube,

the free oxygen-containing gas is fed to the second tube,

the flammable gas is fed to the third tube, and

the free oxygen-containing gas is fed to the fourth tube.

7. The method of claim 1 wherein said burner is a triple-tube burner having center, second and third tubes arranged concentrically from inside to outside,

a mixture of the organohalosilane gas, the flammable gas and the free oxygen-containing gas is fed to the center tube,

the free oxygen-containing gas is fed to the second tube, and

the flammable gas is fed to the third tube.

8. The method of claim 1 wherein said burner is a double-tube burner having a center tube and a second tube surrounding the center tube,

a mixture of the organohalosilane gas, the flammable gas and the free oxygen-containing gas is fed to the center tube, and

the free oxygen-containing gas is fed to the second tube.

9. The method of claim 6 wherein the gas linear velocity at the outlet of the second tube is 10 to 80% of the gas linear velocity at the outlet of the center tube.

10. Particulate silica produced by the method of claim 1 and having a specific surface area of 100 to 400 $m^2/g$ and a logarithmic standard deviation of primary particle diameter of up to 0.5.